DESCRIPTION

An essential introductory text linking traditional biostatistics with bayesian methods

In recent years, Bayesian methods have seen an explosion of interest, with applications in fields including biochemistry, ecology, medicine, oncology, pharmacology, and public health. As an interpretive system integrating data with observation, the Bayesian approach provides a nuanced yet mathematically rigorous means of conceptualizing biomedical statistics--from diagnostic tests to DNA evidence.

Biostatistics: A Bayesian Introduction offers a pioneering approach by presenting the foundations of biostatistics through the Bayesian lens. Using easily understood, classic Dutch Book thought experiments to derive subjective probability from a simple principle of rationality, the book connects statistical science with scientific reasoning. The author shows how to compute, interpret, and report Bayesian statistical analyses in practice, and illustrates how to reinterpret traditional statistical reporting--such as confidence intervals, margins of error, and one-sided p-values--in Bayesian terms. Topics covered include:

* Probability and subjective probability

* Distributions and descriptive statistics

* Continuous probability distributions

* Comparing rates and means

* Linear models and statistical adjustment
* Logistic regression and adjusted odds ratios

* Survival analysis

* Hierarchical models and meta-analysis

* Decision theory and sample size determination

The book includes extensive problem sets and references in each chapter, as well as complete instructions on computer analysis with the versatile SAS and WinBUGS software packages as well as the Excel spreadsheet program. For professionals and students, Biostatistics: A Bayesian Introduction offers an unique, real-world entry point into a remarkable alternative method of interpreting statistical data.

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**ABOUT THE AUTHOR**

GEORGE G. WOODWORTH, PhD, holds dual professorships in statistics and public health at the University of Iowa. The author of more than 100 individual and collaborative publications, he received his PhD from the University of Minnesota.

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